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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,884	08/06/2001	Michael Kenny	259/079	7035
45540	7590	03/22/2006		
PERKINS COIE LLP/SEMITOOL PO BOX 1208 SEATTLE, WA 98111-1208			EXAMINER EL ARINI, ZEINAB	
			ART UNIT	PAPER NUMBER
			1746	
DATE MAILED: 03/22/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/925,884	<b>Applicant(s)</b> KENNY ET AL.	
	<b>Examiner</b> Zeinab E. EL-Arini	<b>Art Unit</b> 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-14, 17, 20, 22-29, 37, 39 and 41-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-14, 17, 20, 22-29, 37, 39 and 41-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/07/05</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The amendment and remarks filed 01/03/06 have been acknowledged and entered.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 30, 35, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Torek et al in combination with DeGendt et al. and EP'177 and Kunze-Concewitz (5,964,952).

This rejection stated in paper No. 092606 has been withdrawn in view of applicants' amendment.

Claims 1-7, 9-10, 12-14, 17, 20, 22-29, 37, 39, and 41-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Torek et al. (6,758,938) in combination with DeGendt et al. (US 2002/0011257 A1) or JP 07-155714 (JP'714) and EP'177.

Torek et al. disclose a method for stripping a layer from a semiconductor wafer. The method comprises introducing ozone into a process chamber and activating a water spray for a first predetermined amount of time, thereby creating a water layer on a semiconductor wafer, wherein the water layer transport high concentrations of the

ozone to the semiconductor wafer. The reference discloses controlling a thickness of the water layer. The reference discloses rotating the workpiece. The reference also discloses spraying heated water and forming a boundary layer of a heated liquid. See col. 2, lines 7-57, col. 3, lines 20-26, col. 5, lines 38-45, col. 7, lines 19-65.

Torek et al. teach all limitation with the exception of moving the liquid jet at speed sufficient to penetrate through the boundary layer, and the sonic energy as claimed.

DeGendt disclose a method of removing organic contaminant from a workpiece.

The method comprises, forming a layer or film of heated liquid on the workpiece, rotating the workpiece, controlling the thickness of the liquid layer on the surface of the workpiece, subjecting the solution to megasonic agitation (see claim 16), and introducing ozone gas into the process chamber with the ozone gas diffusing through the layer. See paragraphs 79 and 80. The reference also discloses rinsing the workpiece.

JP'714 discloses removing the foreign matter adhering to the face of a substrate by operation of the liquid on which the supersonic wave was made to superimpose. See the document in general.

EP'177 as discussed supra in paper No. 041305 discloses a method for etching semiconductor wafer. The reference teaches rinsing the substrate with liquid jet to sweep away the HF solution, and spinning the substrate, and controlling the thickness

of the layer of processing liquid. See the abstract, Fig. 1, page 2, lines 55-58, page 3, lines 11-page 4, line 24, and the claims.

It would have been obvious for one skilled in the art to use the megasonic taught by DeGendt et al. or the supersonic taught by JP'714 in the Torek et al process to enhance the cleaning process. It would have been obvious for one skilled in the art to use the rinsing jet, and spinning substrate, taught by EP'177 in the Torek et al. in combination with DeGendt et al. or JP'714 process to enhance the cleaning process, by sweeping away the contaminants from the surface of the substrate, see col. 3, line 56- col. 4, line 2.

EP'177 does not teach moving the liquid jet, using swing arm, the diameter, the pressure as claimed.

It would have been obvious for one skilled in the art to adjust the pressure and moving speed to obtain optimum results. Using swing arm is well known in the art.

1. Claims 1-2, 8, and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeGendt et al. 257 in combination with EP'177.

DeGendt disclose a method of removing organic contaminant from a workpiece.

The method comprises, forming a layer or film of heated liquid on the workpiece, rotating the workpiece, controlling the thickness of the liquid layer on the surface of the workpiece, subjecting the solution to megasonic agitation (see claim 16), and introducing ozone gas into the process chamber with the ozone gas diffusing through

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the layer. The reference discloses rotating the substrate at high speed. See paragraphs 79 and 80. The reference also discloses rinsing the workpiece.

The reference discloses all limitation with the exception of directing a liquid jet as claimed.

EP'177 as discussed supra in paper No. 041305 discloses a method for etching semiconductor wafer. The reference teaches rinsing the substrate with liquid jet to sweep away the HF solution, and spinning the substrate, and controlling the thickness of the layer of processing liquid. See the abstract, Fig. 1, page 2, lines 55-58, page 3, lines 11-page 4, line 24, and the claims.

It would have been obvious for one skilled in the art to use the liquid jet taught by EP'177 in the DeGendt et al. process to improve the cleaning process. One skilled in the art would adjust the speed of rotation to obtain optimum results. It would have been obvious for one skilled in the art to adjust the direction of the liquid jet taught by EP'177 to obtain optimum results.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-10, 12-14, 17, 20, 22-29, 37, 39, and 41-48 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeinab E. EL-Arini whose telephone number is (571) 272-1301. The examiner can normally be reached on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Zeinab E. EL-Arini*  
Zeinab E. EL-Arini  
Primary Examiner  
Art Unit 1746

ZEE  
03/20/06